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HYSTERECTOMY FOR PUERPERAL INFECTION.

Read in the Section on Obstetrics and Diseases of Women, at the Forty-
sixth Annual Meeting of the American Medical Association,
at Baltimore, Md., May 7-10, 1895.

BY REUBEN PETERSON, M.D.

MEMBER OF THE CHICAGO GYNECOLOGICAL SOCIETY; FELLOW OF THE
AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.
GRAND RAPIDS, MICH.

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The advances which have been made in the science of bacteriology and the discovery that the same germs are responsible for wound infection and puerperal sepsis, has given a new impetus to the consideration of certain surgical procedures looking to the cure of various forms of sepsis met with during the puerperium. During the past few months the question of removal of the uterus, as a method of treatment for certain conditions arising during the course of puerperal infection, has been discussed by some of the prominent gynecologic societies of the country and much difference of opinion in regard to the advisability of this mode of procedure has been shown to exist.

In spite of the diminished mortality from puerperal sepsis, brought about by the introduction of antiseptic and aseptic measures, probably many thousands of women die annually from puerperal septicemia. The favorable results have been obtained in the large maternities, where perfect technique can be secured. Outside of these hospitals, on the other hand, there exists still a large amount of septic infection, following abortion or labor at full term. It is next to impossible to gather accurate statistics relative to the mortality from this disease, because of the inaccuracy of the death certificates. The public have learned to blame the attending physician for any death resulting from septic infection subsequent to labor, from which naturally arises the discrepancy between the actual and reported diagnosis. If to this be added the sepsis arising from accidental and induced abortions, it will be seen that no effort

should be spared to perfect all methods of treatment for the relief of this condition. The present paper is offered as a slight contribution to the study of the subject.

A clear conception of the bacteriologic and pathologic changes in the birth canal is highly essential to the evolvment of correct principles of treatment. Bumm describes two forms of endometritis, putrid and septic. The germs which are active in producing septic endometritis are the streptococcus pyogenes aureus, the staphylococcus pyogenes aureus and the streptococcus erysipelatus. The septic process may be localized and the germs shut off from the underlying tissues by a granulating zone, or this zone may be absent and the pyogenic cocci be found distributed in the lymphatics leading to the peritoneum. In septic endometritis although putrefactive germs may be present, they do not predominate, hence fetid lochial discharges are apt to be absent in the more septic processes, a fact of much significance as a point of diagnosis.

In putrid endometritis there is always to be found decomposed material within the uterine cavity and a necrosis of the epithelial layer. The granulation zone is also present in this variety, and acts as a barrier to the penetration of the germs and their products into the lymph spaces of the uterus. The putrefactive focus within the uterine cavity favors the development of certain toxins, the absorption of which into the blood gives rise to a form of systemic poisoning termed sapremia, the symptoms of which differ in many respects from those accompanying septicemia.

Generally speaking, cases of puerperal sepsis may be divided into two large classes; 1, those where by means of the lymphatics, a large number of germs have found their way into the general circulation without giving rise to localized inflammation in the broad ligaments, adnexa or peritoneum; and 2, where the septic process has resulted in areas of localized

inflammation in and about the birth canal, the general circulation containing, as the case may be, many or few of the pyogenic cocci.

Considering the second class first, we meet with a variety of local manifestations. The septic inflammation may spread from the interior of the uterus to the peritoneum and a localized peritonitis result. The germs may travel by way of the uterine lymphatics or Fallopian tubes. These are the cases which offer the best results from operative interference, because the products of inflammation are walled in and shut off from the general peritoneal cavity by adhesions. This variety of inflammation results in localized collections of pus, which often assume such large proportions as to be mistaken for, and reported as, cases of general septic peritonitis cured by celiotomy and drainage.

The broad ligaments may be involved by an absorption of the septic germs by way of the pelvic lymphatics. Here we meet with true pelvic cellulitis and abscess, the evacuation of which often results in a subsidence of the puerperal symptoms and a cure. Again we may have a general purulent peritonitis resulting from absorption by way of the lymphatics. This usually proves rapidly fatal and where fully developed is probably not amenable to treatment, the system being overwhelmed by the poison absorbed from the large amount of surface involved in the septic process.

In speaking of the pathologic conditions found in septic endometritis, it was stated that in a certain class of cases the granulating zone, shutting off the necrotic endometrium and offering a barrier to the invasion of the germs into the underlying tissues might be absent. Then the pathogenic cocci are absorbed directly by the lymphatics and veins and find their way directly into the general circulation setting up a virulent septicemia. These are the cases belonging to the first division mentioned above. Localized inflammatory processes in the cellular tis-

sue, adnexa and peritoneum are absent or only appear secondarily just before the fatal issue brought about by the general systemic poisoning. Even in those cases of septic endometritis where a granulating zone is primarily present, active absorption may take place if, through the injudicious use of the sharp curette, this protective zone is removed. To recapitulate, we may divide puerperal sepsis into two large divisions:

1. Where general infection predominates, and localized inflammatory processes appear only secondarily and are of minor importance compared with the general septic condition.

2. When the septic absorption results in the formation of localized inflammation either in the adnexa, pelvic cellular tissue or peritoneum. General infection, however, may accompany or result from these inflammatory collections.

There should be no difference of opinion in regard to the proper treatment to be instituted for the relief of the cases coming under the second division, except where absorption has resulted in general purulent peritonitis. All collections of pus in the adnexa or cellular tissue should be evacuated with the least possible delay, and the tubes and ovaries removed if necessary. It will usually be found best to reach the pelvic abscess by way of the vagina, but so much more can be learned in regard to the condition of the peritoneum and uterus by the abdominal incision, that it would seem preferable to remove the appendages by this route, when the general condition of the patient presents no contra-indications.

Surgery has scored some brilliant successes in the treatment of localized puerperal septic inflammatory deposits, as a review of the reported cases will reveal. What confronts the surgeon to-day is the treatment of the other class of cases, where absorption is taking place from the interior of the uterus by way of the lymphatics, and the resulting infection is becoming general and not local. Medical treatment for

these cases is practically valueless. Can surgery prove of any avail?

The cases of general infection now under consideration are of two descriptions, as might be supposed from a study of the two varieties of septic endometritis, which have been pathologically considered:

1. We have those cases where the veins and lymphatics at the placental site are loaded with germs; and 2, where the zone is present and impedes to some extent the further penetration of the cocci. Clinically, it is extremely difficult, if not impossible, to differentiate between these two conditions, which a histologic study of the endometrium has revealed to us. The symptoms of both are pronounced and denote a general septic absorption. The lesson to be learned is that a dull and not sharp curette should be used in intra-uterine treatment, if we would preserve nature's barrier which has been thrown out in the form of a granulating zone. The treatment of these septic cases must be rigorous and thorough, if it is to prove of any avail. The source of infection must be got rid of at once or else the blood will become so loaded with the poisonous germs that any treatment will be valueless. Could we differentiate between the two conditions clinically, it would be advisable to curette and pack the uterus with gauze in the second class of cases and exchange this method for more radical procedures for those of the first class. But inasmuch as a differentiation is almost impossible, the plan of treatment just suggested should be employed in all cases.

A careful examination has already revealed the fact that the beginning septic infection is not complicated or has not given rise to localized inflammatory deposits. The main diagnostic symptoms to be relied upon are the high fever, rapid pulse, possibly chills and the history of the case. A careful curettage will remove everything from the uterine cavity which can give rise to septic absorption. If the curettage and packing with gauze causes no ameliora-

tion of the symptoms within twelve or eighteen hours, the only logical procedure that remains to us is to remove the source of infection, namely, the uterus. If this be done early enough the patient may live. In other words, provided the organ, whose lymphatics have been shown to be loaded with germs, can be removed before too many have found an entrance into the general circulation there would seem to be no reason why a cure should not be effected. It may be urged that such a procedure is too radical and that it is useless, because the disease is general not local, hence the removal of the uterus can have no effect. It *is* a radical procedure but not more radical than the disease is fatal, if allowed to proceed unchecked. The outcome must be fatal, unless the source of infection be removed. If the absorption has progressed to a certain point, hysterectomy is a useless operation, because we are then dealing with a general and not a local disease. The plea that is made here is for the radical operation while the disease is still local. The writer is convinced that by early operation a certain number of cases may be saved. It is not right to condemn hysterectomy in these cases because it has failed when undertaken too late. Successful cases have been reported and will become more common as we become more skilled in diagnosis and more expeditious in treatment. The writer has arrived at these conclusions from a careful study of the following case, which is reported in full because of its bearing on the subject under discussion:

Sunday afternoon, Feb. 3, 1895, the writer was asked by Dr. A. J. Pressey to see in consultation Mrs. W. The attending physician gave the following history of the case: the patient was 28 years old and married. She had had two children. The doctor had attended her for a number of miscarriages. January 28 he was called to see her and found her with a temperature of 105. She had been flowing according to her statement, for four days. The next morning the temperature was 102 and the next 106.

She then confessed that she had brought on a miscarriage, the method employed not being stated. She was immediately placed under an anesthetic and the uterus thoroughly curetted with a sharp curette. A putrid placenta, half the size of the hand was brought away, the uterus carefully douched with bichlorid solution and packed with gauze. The next day the latter was removed and showed itself free from any odor. The temperature ranged from 101.6 to 102.2 and the pulse was over 100. During the next three days there was but little change in the patient's condition except a gradual rise in the temperature, in spite of liberal doses of antipyretics. A number of intra-uterine bichlorid douches were administered, although there was absolutely no odor to the vaginal discharge.

At the consultation, February 3, the temperature was found to be between 104 and 105, pulse 110. There was no abdominal tenderness and no signs of peritonitis. Vaginal examination revealed a slight thickening in the right broad ligament, otherwise the examination was negative. There was no odor to the vaginal discharge. The patient's general condition was excellent and she expressed herself as feeling perfectly well and as not seeing the necessity of a consultation of physicians. It was decided to curette again the following morning if the patient's condition was not improved. This was thoroughly done at the appointed time, as the temperature was still high, and the uterus again packed with gauze. The following noon, Tuesday February 5, as the temperature was over 104 degrees and the pulse high, it was decided, as the last chance, to open the abdomen, prepared to remove the seat of the infection, even if a hysterectomy should be necessary. The entire peritoneum was found to be deeply congested. Especially so was the surface of the intestines and broad ligaments and the peritoneum over the fundus of the uterus. The appendages were found to be normal in size and position and the bunch felt in the right side

of the pelvis was seen to be a true puerperal cellulitis. The question that arose in the operator's mind was, Shall the uterus which is or has been the seat of infection be removed, or shall the incision be closed and no further attempt made to save the patient? A hysterectomy was decided upon, for reasons which will be stated later on, and the uterus and appendages removed entire in a comparatively short time, if it be taken into consideration that the surroundings were unfavorable, the operating room being little better than an attic.

There was little or no shock after the operation, but it proved of no avail, for the septicemic symptoms became more and more pronounced and the death of the patient occurred two days later. An autopsy showed that general purulent peritonitis had developed subsequent to the operation.

This detailed description of the case has been necessary, in order that certain deductions might be drawn which may help us in future cases. It would seem, in all probability, that the high temperature and other symptoms which were present just prior to the first curetting were indicative of the presence of a powerful poison within the blood. In other words, we had to deal here with a sapremia and not a septicemia, the toxins being produced because of the presence of the putrid retained placenta. It is also probable that the sharp curette, while it removed the foul placenta, may have opened the uterine sinuses and veins and allowed the entrance of the pathogenic cocci themselves. At any rate, the curetting and packing with gauze did no good, if no positive harm were done. In the opinion of the writer, the second curetting was a mistake. The history of the case should have been taken into consideration and the celiotomy performed then and there. If it had been done at that time or better, just after the first curetting had failed to accomplish any good, there is every reason to believe that the removal of the uterus would have saved the patient's life. The moment

should have been seized when the germs were within the uterus and but few had penetrated into the general circulation. Could such a time be chosen and the uterus, which is the source of the infection, be removed, there seems no good reason why the septicemic process might not be aborted. The mistake that is made is delaying until the system is so overcharged with the poison that the removal of the source of the infection can not avert the fatal termination.

SUMMARY.

1. Puerperal sepsis is still a common disease, although in the hospitals the mortality from this source is practically *nil*.

2. There are two forms of puerperal endometritis: (a), putrid; (b), septic.

3. In the septic form there may or may not be present a granulating zone, acting as a barrier to the further penetration of the germs.

4. Putrefactive germs may be absent, hence fetid lochia may not be present.

5. Putrid endometritis signifies necrosis of the lining membrane of the uterus and the presence of decomposed material.

6. This variety is prone to develop toxins, the absorption of which gives rise to sapremia.

7. Clinically, cases of puerperal sepsis may be separated into two large divisions: 1, where general infection predominates; 2, where localized inflammatory deposits are present, the general infection being secondary and less important.

8. The areas of septic inflammation may be in the adnexa, pelvic cellular tissue or peritoneum.

9. This class of cases present the most favorable field for operative procedures.

10. It is almost impossible to make a differential diagnosis between those cases of septic infection having a granulating zone in the uterine tissue and where this is absent.

11. These cases should be curetted with a dull instrument and packed with gauze.

12. If there is no improvement in the symptoms within twelve or eighteen hours the source of the infection, namely, the uterus, should be removed.

13. Hysterectomy should not be condemned because of its failure when performed too late.

14. If this operation be done early enough it will be the means of saving a number of lives.

